



Data visualization beginner's guide: a definition, examples, and learning resources

Data visualization is the graphical representation of information and data. By using **visual elements like charts, graphs, and maps**, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data.

In the world of Big Data, data visualization tools and technologies are essential to analyze massive amounts of information and make data-driven decisions.

The advantages and benefits of good data visualization



Our eyes are **drawn to colors and patterns**. We can quickly identify red from blue, square from circle. Our culture is visual, including everything from art and advertisements to TV and movies.

Data visualization is another form of visual art that grabs our interest and keeps our eyes on the message. When we see a chart, we **quickly see trends and outliers**. If we can see something, we internalize it quickly. It's storytelling with a purpose. If you've ever stared at a massive spreadsheet of data and couldn't see a trend, you know how much more effective a visualization can be.

Big Data is here and we need to know what it says

As the **"age of Big Data" kicks into high-gear**, visualization is an increasingly key tool to make sense of the trillions of rows of data generated every day. Data visualization helps to tell stories by curating data into a form easier to understand, highlighting the trends and outliers. A good visualization tells a story, removing the noise from data and highlighting the useful information.

However, it's not simply as easy as just dressing up a graph to make it look better or slapping on the "info" part of an infographic. Effective data visualization is a delicate balancing act between form and function. The plainest graph could be too boring to catch any notice or it make tell a powerful point; the most stunning visualization could utterly fail at conveying the right message or it could speak volumes. The data and the visuals need to work together, and there's an art to combining great analysis with great storytelling.

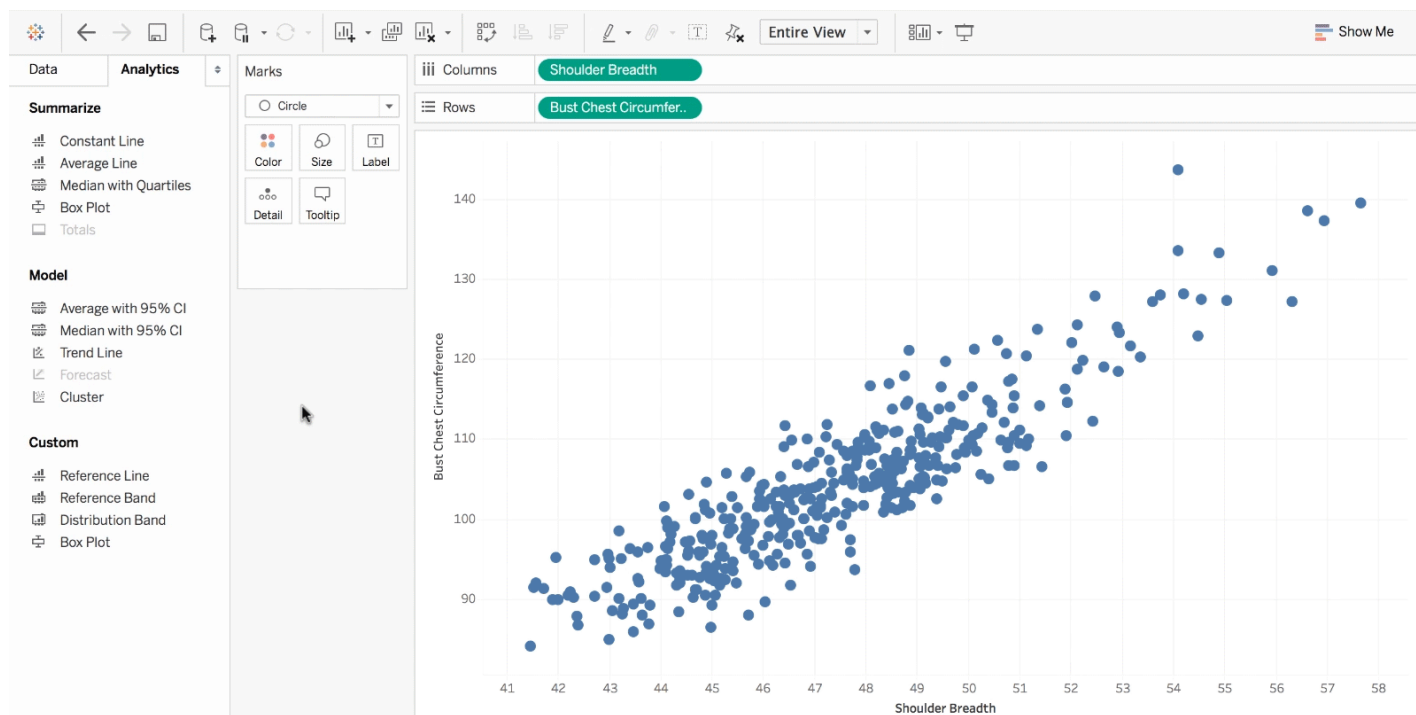
Why data visualization is important for any career

It's hard to think of a professional industry that doesn't benefit from **making data more understandable**. Every STEM field benefits from understanding data—and so do fields in government, finance, marketing, history, consumer goods, service industries, education, sports, and so on.

While we'll always wax poetically about data visualization (you're on the Tableau website, after all) there are practical, real-life applications that are undeniable. And, since visualization is so prolific, it's also one of the most useful professional skills to develop. The better you can convey your points visually, whether in a dashboard or a slide deck, the better you can leverage that information.

The concept of **the citizen data scientist is on the rise**. Skill sets are changing to accommodate a data-driven world. It is increasingly valuable for professionals to be able to use data to make decisions and use visuals to tell stories of when data informs the who, what, when, where, and how. While traditional education typically draws a distinct line between creative storytelling and technical analysis, the modern professional world also values those who can cross between the two: data visualization sits right in the middle of analysis and visual storytelling.

Examples of data visualization in action

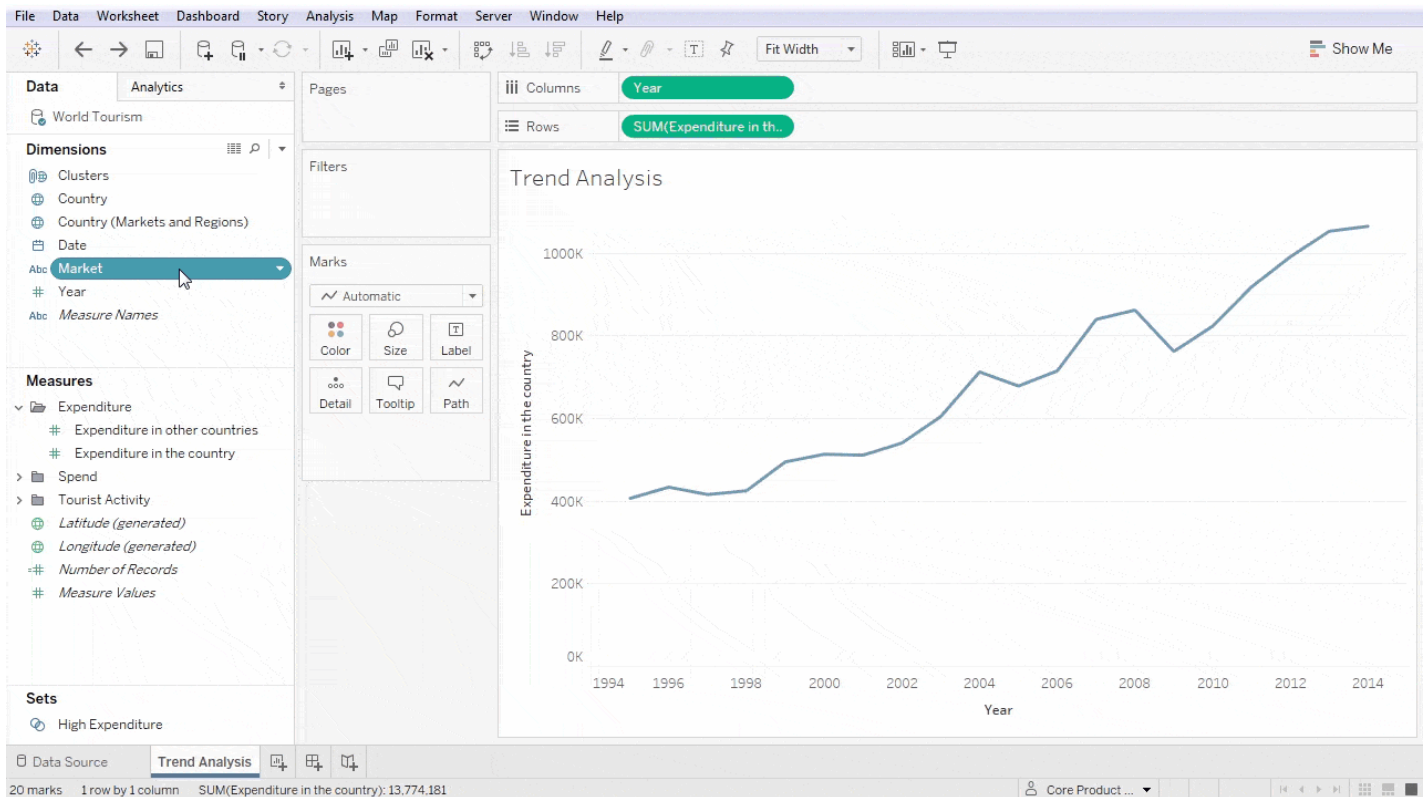


Of course, one of the best ways to understand data visualization is to see it. What a crazy concept!

With public data visualization galleries and data everywhere online, it can be overwhelming to know where to start. We've collected [10 of the best examples of data visualization of all time](#), with examples that map historical conquests, analyze film scripts, reveal hidden causes of mortality, and more.

Tableau's own [public gallery](#) shows off loads of visualizations made with the free Tableau Public tool, we feature some common starter business dashboards as usable templates, and [Viz of the Day](#) collects some of the best community creations. Plus, there are [tons of great blogs](#) and [books about data visualization](#) containing excellent examples, explanations, and information about best practices.

The different types of visualizations



When you think of data visualization, your first thought probably immediately goes to simple bar graphs or pie charts. While these may be an integral part of visualizing data and a common baseline for many data graphics, the right visualization must be paired with the right set of information. **Simple graphs are only the tip of the iceberg.** There's a whole selection of visualization methods to present data in effective and interesting ways.

Common general types of data visualization:

- Charts
- Tables
- Graphs
- Maps
- Infographics
- Dashboards

More specific examples of methods to visualize data:

- Area Chart
- Bar Chart

- Box-and-whisker Plots
- Bubble Cloud
- Bullet Graph
- Cartogram
- Circle View
- Dot Distribution Map
- Gantt Chart
- Heat Map
- Highlight Table
- Histogram
- Matrix
- Network
- Polar Area
- Radial Tree
- Scatter Plot (2D or 3D)
- Streamgraph
- Text Tables
- Timeline
- Treemap
- Wedge Stack Graph
- Word Cloud
- And any mix-and-match combination in a dashboard!

Learn more about data visualizations (and how to create your own)

If you're feeling inspired or want to learn more, there are tons of resources to tap into.

Data visualization and data journalism are full of enthusiastic practitioners eager to share their tips, tricks, theory, and more.

Blogs about data visualization are a perfect place to start

See our list of great [data visualization blogs full of examples](#), inspiration, and educational resources.

The experts who write books and teach classes about the theory behind data visualization also tend to keep blogs where they analyze the latest trends in the field and discuss new vizzes. Many will offer critique on modern graphics or write tutorials to create effective visualizations.

Others will collect many different data visualizations from around the web in order to highlight the most intriguing ones. Blogs are a great way to learn more about specific subsets of data visualization or to look for relatable inspiration from well-done projects.

Learn about historical examples and theory from books

Read our list of great [books about data visualization theory and practice](#).

While blogs can keep up with the changing field of data visualization, books focus on where the theory stays constant. Humans have been trying to present data in a visual form throughout our entire existence. One of the earlier books about data visualization, originally published in 1983, set the stage for data visualization to come and still remains relevant to this day.

More current books still deal with theory and techniques, offering up timeless examples and practical tips. Some even take completed projects and present the visual graphics in book-form as an archival display.

There are loads of free courses and paid training programs

There are plenty of great paid and free courses and resources on data visualization out there, including [right here on the Tableau website](#). There are videos, articles, and whitepapers for everyone from beginner to data rockstar. When it comes to third-party courses, however, we won't provide specific suggestions in this article at this time.

A note on data visualization tools and software

There are [dozens of tools for data visualization and data analysis](#). These range from simple to complex, from intuitive to obtuse. Not every tool is right for every person looking to learn visualization techniques, and not every tool can scale to industry or enterprise purposes. If you'd like to learn more about the options, feel free to [read up here](#) or dive into [detailed third-party analysis like the Gartner Magic Quadrant](#).

Also, remember that good data visualization theory and skills will transcend specific tools and products. When you're learning this skill, focus on best practices and explore your own personal style when it comes to visualizations and dashboards. Data visualization isn't going away any time soon, so it's important to build a foundation of analysis and storytelling and exploration that you can carry with you regardless of the tools or software you end up using.

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